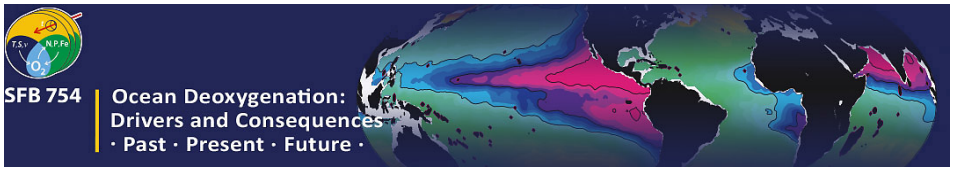

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Multidecadal changes of OMZ intensity over the Peruvian upper-slope inferred by pore density in benthic foraminifer Bolivina seminuda since XIXth century

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The abrupt change to a regime of high productivity with nutrient-rich and low-oxygen concentration waters on the Eastern Tropical Pacific since the end of the Little Ice Age (LIA) promoted the development of an intense Oxygen Minimum Zone (OMZ) that allows the preservation of carbonates at the seafloor. Calcareous benthic foraminifera dominates foraminiferal faunas in most OMZ realms and exhibits some morphological attributes which have only been reported for this type of settings. Among these, the presence of pores on their shells has been attributed to an environmental response. More recently, some studies have proposed that pore density in epifaunal taxa is closely linked to the bottom water oxygenation and infaunal taxa could be reflecting reducing conditions in the sediment. Therefore, we present pore density results of *Bolivina seminuda* Cushman 1911 in a sediment core collected on the Peruvian upper-slope to reconstruct the past variability of bottom oxygenation since the beginning of XIXth century.

For this purpose, up to 10 specimens of the shallow infaunal species *B. seminuda* were picked from the 125 µm fraction at different depths along the core B1404-11 (off Pisco, 302 m depth, April 2014). The whole shell of the specimen was photographed in a scanning electron microscopy (SEM) at different magnifications. Pores were counted manually using the software ImageJ and based on two methodologies. The pore density was expressed as #pores.µm-2. In addition, rose Bengal-stained specimens of *B. seminuda*, previously sorted from different depths, were used for a calibration with bottom nitrate concentrations collected during R.V. Meteor cruise M92 in January 2013. Sediment accumulation rates were assessed through downcore profiles of 210Pb and 241Am and allowed us to develop a chronology for the upper 30 cm.

Pore density in *B. seminuda* displayed a slight positive trend since the end of the LIA to the end of XIXth century, supporting some previous studies regarding reducing bottom-water conditions in this period. From here, a muti-decadal scale variability is observed towards the current period. Moreover, pore density exhibited a drop for the last decades, suggesting the increase of nitrate availability and therefore, a reduction in the intensity of the OMZ in this region of the Eastern Tropical Pacific.

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